

REMARKS/ARGUMENTS

Claims 1-20 and 34-39 are pending. The Office Action rejects all the pending claims under 35 U.S.C. §112, first paragraph, rejects several claims under 35 U.S.C. §102 as anticipated by Shtein I, Shtein II, and/or Schmitt, and rejects all the claims under 35 U.S.C. §103 as unpatentable over various combinations of references. By this Amendment, claim 1 is amended and claim 40 is new. Support for the amendment can be found at least at paragraphs 0008, 0039, 0043, 0046, 0047, 0049, 0050, and throughout the specification, drawings, and claims as originally filed. No new matter has been added.

Declaration Under 37 C.F.R. §1.132

The Examiner's attention is respectfully drawn to the Declaration by Stephen R. Forrest submitted herewith. Specific portions of the Declaration are referenced below for the Examiner's convenience.

35 U.S.C. §112 Rejection

The Office Action rejects claim 1 under §112, first paragraph. The relevant language has been removed from claim 1, but similar language is included in new claim 40. Applicants respectfully submit that the specification contemplates a wide range of background pressures and dynamic pressures, and that these disclosures are sufficient to support any pressures or pressure differences within the disclosed ranges. *See, e.g.*, ¶ 008, 0039, 43, 47, 49, and 50. To expedite prosecution, claim 40 recites a dynamic pressure that is at least 0.5 Torr greater than the background pressure. This difference is explicitly supported by paragraphs 0008 (dynamic pressure of at least 1 Torr) and 0049 (background pressure P_3 of 0.5 Torr).

35 U.S.C. §102 Rejections: Shtein I and II

The Office Action rejects claim 1 and several dependent claims as anticipated by Shtein I ("Micropatterning of small molecular weight organic semiconductor thin films using organic vapor phase deposition") and Shtein II ("Micron-scale patterning of organic thin films using organic vapor phase deposition"). To support these rejections, the Office Action must show that

each reference discloses each and every feature recited in the claims, in the same arrangement and detail as in the claims.

The Shtein references describe two separate things: deposition through a mask in an OVPD process, and simulations of material ejected from a nozzle (in Shtein I). Neither of these discloses each and every feature recited in the claims.

With respect to the descriptions of OVPD processes, Shtein I and II fail to disclose at least a **nozzle** as recited in claim 1. Although claim terms are to be given a “broadest reasonable interpretation” during prosecution, this interpretation must be consistent with the interpretation that would be reached by one of skill in the art. As evidenced by the Declaration of Stephen Forrest submitted herewith, one of skill in the art would not interpret the “nozzle” recited in claim 1 to encompass the “mask” disclosed in Shtein I and Shtein II, and would not otherwise consider a mask to be equivalent to a nozzle. Declaration, ¶ 15. Thus, the interpretation proposed by the Office Action is inconsistent with the interpretation that would be reached by one of skill in the art. The Office Action also argues that Shtein I suggests modifying an OVPD process to use a high-velocity carrier gas. Even if true, which Applicants do not concede, the OVPD process still does not use a nozzle as recited in the claim, as the term would be understood by one of skill in the art. For at least this reason, Shtein I and Shtein II do not anticipate claim 1.

With respect to the simulations described in Shtein I, these simulations explicitly exclude the presence or effect of any dynamic pressure. This is explained in further detail in the Amendment filed March 23, 2009, and is supported by paragraphs 9-14 of the Declaration submitted herewith. Thus, these simulations **cannot** disclose a dynamic pressure as recited in claim 1 and, therefore, cannot anticipate claim 1. Similarly, the Office Action’s suggestion that one of ordinary skill “could operate the simulation in physical form without undue experimentation” ignores the non-physical nature of these simulations. The simulations do not describe real systems that one of skill in the art could construct based on their description in Shtein I – since they make fundamental, non-physical assumptions, one of skill in the art could not construct a real system with the same properties as these simulations. This is supported at least by paragraph 8 of the attached Declaration.

The Office Action also asserts that “spraying in a 10 Torr [or 100 Torr] environment **inherently** results” in the claimed dynamic pressure. To support a rejection based on inherency, the Office Action must show that the cited art necessarily results in the claimed feature. Initially, Applicants note that Shtein I and II do not describe any system or process that results in a dynamic pressure as claimed at all. The OVPD process described in these references is diffusive, does not eject material from a nozzle, and would not result in the dynamic pressure as claimed. The simulations exclude any consideration of dynamic pressure, as previously described. Further, merely “spraying” at a particular background pressure does not necessarily result in the claimed dynamic pressure. For example, depending on other process parameters, negligible or no dynamic pressure may result. *See* Declaration, ¶ 8. Since the references do not **necessarily** result in the claimed dynamic pressure, they do not support a rejection based on inherency.

The Office Action further asserts that the presence of a jet and background pressure “within the parameters as claimed” will necessarily result in the dynamic pressure as claimed. This is incorrect. Claim 1 does not recite specific parameters for the background pressure. Further, the dynamic pressure is recited in claim 1 essentially as a process parameter (see Declaration, ¶ 8) – the features recited in claim 1 other than the dynamic pressure do not define any particular dynamic pressure, and it is possible to operate with the jet and background parameters recited in claim 1 without achieving the dynamic pressure as claimed. *Id.* The Office Action’s citation to paragraph 0042 of the specification does not remedy this defect. Paragraph 0042 merely indicates why the dynamic pressure may be higher than the background pressure. It does not indicate that the interaction between the jet and the ambient pressure necessarily produces a particular dynamic pressure. For at least these reasons, the dynamic pressure recited in claim 1 is not inherently disclosed by Shtein or Shtein II.

Applicants also respectfully note that the text “OVJP for home office?” does not describe an OVJP process as recited in claim 1, and Shtein II does not provide sufficient information for one of skill in the art to perform the method recited in claim 1. Declaration, ¶ 14. Thus, Shtein II does not anticipate claim 1.

35 U.S.C. §102 and §103 Rejections: Schmitt

Independent claims 1 and 11 recite forming a plurality of separate films on the substrate. The Office Action asserts that Schmitt discloses this feature in Figure 12, which allegedly shows a plurality of discrete films. This interpretation is inconsistent both with Schmitt's disclosure and with the purpose of Schmitt. Schmitt is directed to depositing blanket coatings on a substrate. Figure 12 merely shows a "batch mode" in which **multiple** substrates are coated:

FIG. (12) shows the use of the apparatus illustrated in FIG. (1) in "batch mode" for the coating of "**batches**" of substrates. ... Substituted for the substrate 1-10 of FIG. (1) is a mechanism 13-1 for holding and transporting individual substrates 13-2 into and through the flow of the jet 1-7 where they receive their thin film coating.

Col. 5, lines 8-16 (emphasis added). Schmitt's Figure 12 merely shows multiple substrates, each of which receives a **blanket** coating. It does not show organic material deposited onto a **substrate**, forming a **plurality of separate films** of the organic material on **the substrate** as recited in claims 1 and 11. In fact, when Schmitt is considered as a whole, it is apparent that such a configuration would be disfavored by Schmitt. Schmitt teaches that uniform, blanket coatings are desired. For at least this reason, claim 1 is not anticipated by Schmitt. This deficiency is not remedied by Shah and, therefore, claim 11 is also allowable over the cited references, whether considered alone or in combination.

35 U.S.C. §103 Rejections

The Office Action argues that the recited flow velocity that is at least 10% of the thermal velocity of the carrier gas represents mere optimization of known result-effective variables. Even if correct, which Applicants do not concede, this does not remedy the defects of the Shtein references described with respect to the §102 rejections above.

Although not explicitly described in the rejection under §103, the Office Action also apparently suggests that one of skill in the art would necessarily obtain a predictable, physical system using the simulations described in Shtein I, that would necessarily have the recited dynamic pressure. Office Action, p. 4. The Office Action also suggests that Shtein discloses

“modifying the OVPD process” to include a high-velocity carrier gas. *Id.*, p. 5. Applicants respectfully disagree.

The simulations in Shtein I do not provide any indication that a particular dynamic pressure is desired, and do not indicate to one of skill in the art how to obtain a particular dynamic pressure. Declaration, ¶ 11-14. One of skill in the art would not know to construct or operate an OVJP system using a dynamic pressure as recited in claim 1 based on the Shtein disclosures, and the Office Action has not shown that Shtein suggests operating a real system in such a way as to obtain the recited dynamic pressure.

Further, Shtein I does not describe a real system that “modifies” an OVPD process to include a high-velocity carrier gas. Shtein I merely describes a simulation of a high-velocity carrier gas jet. The results of this simulation are then compared to the diffusive transport of an OVPD process. There is no description in Shtein I of how to construct a system to obtain a dynamic pressure as recited in the claims. *See* Declaration, ¶ 11-12. The simulations in Shtein I also do not provide sufficient information for one of skill in the art to modify an OVPD process as suggested by the Office Action to achieve the recited dynamic pressure.

For at least these reasons, the claims are allowable over the Shtein references as applied by the Office Action. The other cited references do not remedy the defects of the Shtein and Schmitt references described above. All the claims are allowable, therefore, whether the references are considered alone or in combination. The dependent claims are allowable at least for the same reasons as the independent claims, and are patentable for additional reasons.

Appl. No. 10/690,704
Amdt. dated December 15, 2009
Reply to Office Action of June 24, 2009

PATENT
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CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 202-481-9900.

The Commissioner is authorized to charge any fees due or credit any overpayment to the deposit account of Townsend and Townsend and Crew LLP, Deposit Account No. 20-1430.

Respectfully submitted,

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DATE: December 15, 2009

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Declaration Under 37 C.F.R. §1.132 by Stephen Forrest

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